

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. Canceled.

2. (Previously Presented) The method of claim 24, wherein
if the contention control information indicates a contention-free access, determining if a channel access priority level associated with the frame to be transmitted by the second station is higher than a channel access priority level associated with a last transmitted frame.

3. (Original) The method of claim 2, further comprising:
if the contention control information indicates a contention-free status and the channel access priority level associated with the frame to be transmitted is determined to be higher than the channel access priority level of the last transmitted frame, or the contention control information does not indicate a contention-free status, detecting whether any station in the network of stations intends to contend for access to the medium at a channel access priority level that is higher than the channel access priority level associated with the frame to be transmitted.

4. (Original) The method of claim 3, further comprising:
deferring contention for access to the transmission medium to any such station intending to contend for access at the higher channel access priority level.

5. (Original) The method of claim 3, further comprising:
contending for access to the medium during the next contention period if no higher channel access priority level is detected.

6. (Original) The method of claim 5, further comprising:
signaling an intention to contend at the associated channel access priority level to other stations prior to the contention period.

7. (Previously Presented) The method of claim 6, wherein contending during a contention period comprises:

establishing a delay period corresponding to a random backoff time; and
monitoring the transmission medium for activity for the duration of the delay period.

8. (Original) The method of claim 7, further comprising:
transmitting the frame if activity is not detected during the monitoring.

9. (Original) The method of claim 3, wherein detecting whether any station in the network of stations intends to contend for access to the medium at a channel access priority level that is higher than the channel access priority level associated with the frame to be transmitted occurs in a priority resolution period immediately prior to the contention period and wherein detecting whether any station in the network of stations intends to contend for access to the medium at a channel access priority level that is higher than the channel access priority level associated with the frame to be transmitted comprises:

detecting signaling from at least one other station during the priority resolution period, the detected signaling indicating a channel access priority level of a frame to be transmitted by the at least one other the station.

10. (Original) The method of claim 9, wherein the priority resolution period includes n priority resolution slots and supports $2n$ channel access priority levels.

11. (Original) The method of claim 10, wherein $n=2$ and each channel access priority level is represented as a two-bit binary value.

12. (Original) The method of claim 11, wherein the two priority resolution slots include a first priority resolution slot corresponding to a first bit in the two-bit binary value and a second priority resolution slot corresponding to a second bit in the two-bit binary value, and wherein a binary one in the two-bit binary value is received in the detected signaling in a corresponding one of the two priority resolution slots.

13. (Original) The method of claim 12, further comprising:
signaling in the priority resolution slots the channel access priority level associated with the frame to be transmitted.

14. (Original) The method of claim 13, wherein signaling comprises:
signaling in the first priority resolution slot when the associated channel access priority level requires that the first bit in the two-bit binary value be a one; and
signaling in the second priority resolution slot when the associated channel access priority level requires that the second bit in the two-bit binary value be one in the event that the first bit is a one or signaling from no other station was detected in the first priority resolution slot.

15. (Original) The method of claim 9, further comprising:
maintaining a virtual carrier sense timer for projecting when the priority resolution period begins relative to the last transmitted frame.

16. (Original) The method of claim 15, wherein the last transmitted frame includes frame control information, and wherein maintaining comprises:
using the frame control information to provide a value to the virtual carrier sense timer.

17. (Original) The method of claim 16, further comprising:
using a physical carrier sense to determine when the priority resolution period begins relative to the last transmitted frame.

18. (Original) The method of claim 2, wherein the contention control information and the channel access priority level are observable by substantially all of the stations.

19. (Previously Presented) The method of claim 24, wherein the contention control information is a flag that, when set, indicates that the contention-free access interval has been established.

20. (Previously Presented) The method of claim 24, wherein the transmission medium is a power line.

21. (Original) The method of claim 13, wherein signaling comprises transmitting OFDM symbols and wherein detecting signaling comprises detecting transmitted OFDM symbols, the OFDM symbols being observable by substantially all of the stations because of delay spread performance characteristics associated with the OFDM symbols.

22. (Original) The method of claim 9, wherein the priority resolution period follows a period of transmission medium inactivity.

23. Canceled.

24. (Currently Amended) In a network of stations interconnected by a transmission medium, a method of carrier sense multiple access (CSMA) communication in which a plurality of peer stations desiring to transmit a frame may contend for access to the medium during a contention period, the method characterized by

including a contention control field in at least some transmitted frames, the contention control field including contention control information indicating whether the peer stations have permission to contend during a following contention period;

having a first peer station establish a contention-free access interval for transmission of a plurality of frames, wherein the contention-free access interval is established by

having the first peer station contend for access during a contention period and successfully gain access to the medium,

having the first peer station transmit the plurality of frames with contention control information that informs at least some other peer stations that they are not permitted to contend during contention periods within the contention-free access interval;

having at least a second peer station that receives the transmitted frames determine from the contention control information whether the second peer station is permitted to contend during a contention period within the contention-free access interval,

wherein the first and second peer stations when they contend for access do so using a carrier sense multiple access protocol comprising listening for transmission by other stations.

25. (Previously Presented) The method of claim 24, wherein the first station transmits all of the plurality of frames.

26. (Previously Presented) The method of claim 24, wherein the contention control information that informs other stations not to contend during the contention-free access interval appears in all but the last of the plurality of transmitted frames.

27. (Previously Presented) The method of claim 24, wherein contending during a contention period comprises:

having stations that are contending listen during a listening period before initiating transmission, wherein the listening period is generally different for different stations, and

having a station begin transmitting the frame if activity from other stations is not detected during the listening period.

28. (Previously Presented) The method of claim 27, wherein stations are without the capability to listen for transmissions from other stations while they are transmitting.

29. (Previously Presented) The method of claim 28, wherein the method of CSMA communication comprises CSMA/CA communication.

30. (New) In a network of stations interconnected by a transmission medium, a method of carrier sense multiple access (CSMA) communication in which a plurality of stations desiring to transmit a frame may contend for access to the medium during a contention period, the method characterized by

including a contention control field in at least some transmitted frames, the contention control field including contention control information indicating whether stations have permission to contend during a following contention period;

having a first station establish a contention-free access interval for transmission of a plurality of frames, wherein the contention-free access interval is established by

having the first station contend for access during a contention period and successfully gain access to the medium,

transmitting the plurality of frames with contention control information that informs at least some other stations that they are not permitted to contend during contention periods within the contention-free access interval;

having at least a second station that receives the transmitted frames determine from the contention control information whether the second station is permitted to contend during a contention period within the contention-free access interval,

wherein if the contention control information indicates a contention-free access, determining if a channel access priority level associated with the frame to be transmitted by the second station is higher than a channel access priority level associated with a last transmitted

frame, and further comprising:

if the contention control information indicates a contention-free status and the channel access priority level associated with the frame to be transmitted is determined to be higher than the channel access priority level of the last transmitted frame, or the contention control information does not indicate a contention-free status, detecting whether any station in the network of stations intends to contend for access to the medium at a channel access priority level that is higher than the channel access priority level associated with the frame to be transmitted,

wherein detecting whether any station in the network of stations intends to contend for access to the medium at a channel access priority level that is higher than the channel access priority level associated with the frame to be transmitted occurs in a priority resolution period immediately prior to the contention period and wherein detecting whether any station in the network of stations intends to contend for access to the medium at a channel access priority level that is higher than the channel access priority level associated with the frame to be transmitted comprises:

detecting signaling from at least one other station during the priority resolution period, the detected signaling indicating a channel access priority level of a frame to be transmitted by the at least one other the station.

31. (New) The method of claim 30, wherein the priority resolution period includes n priority resolution slots and supports $2n$ channel access priority levels.

32. (New) The method of claim 31, wherein $n=2$ and each channel access priority level is represented as a two-bit binary value.

33. (New) The method of claim 32, wherein the two priority resolution slots include a first priority resolution slot corresponding to a first bit in the two-bit binary value and a second priority resolution slot corresponding to a second bit in the two-bit binary value, and wherein a binary one in the two-bit binary value is received in the detected signaling in a corresponding one of the two priority resolution slots.

34. (New) The method of claim 33, further comprising:
signaling in the priority resolution slots the channel access priority level associated with the frame to be transmitted.

35. (New) The method of claim 34, wherein signaling comprises:
signaling in the first priority resolution slot when the associated channel access priority level requires that the first bit in the two-bit binary value be a one; and
signaling in the second priority resolution slot when the associated channel access priority level requires that the second bit in the two-bit binary value be one in the event that the first bit is a one or signaling from no other station was detected in the first priority resolution slot.

36. (New) The method of claim 30, further comprising:
maintaining a virtual carrier sense timer for projecting when the priority resolution period begins relative to the last transmitted frame.

37. (New) The method of claim 36, wherein the last transmitted frame includes frame control information, and wherein maintaining comprises:
using the frame control information to provide a value to the virtual carrier sense timer.

38. (New) The method of claim 37, further comprising:
using a physical carrier sense to determine when the priority resolution period begins relative to the last transmitted frame.

39. (New) The method of claim 34, wherein signaling comprises transmitting OFDM symbols and wherein detecting signaling comprises detecting transmitted OFDM symbols, the OFDM symbols being observable by substantially all of the stations because of delay spread performance characteristics associated with the OFDM symbols.

40. (New) The method of claim 30 wherein the priority resolution period follows a period of transmission medium inactivity.

41. (New) In a network of stations interconnected by a transmission medium, a method of carrier sense multiple access (CSMA) communication in which a plurality of stations desiring to transmit a frame may contend for access to the medium during a contention period, the method characterized by

including a contention control field in at least some transmitted frames, the contention control field including contention control information indicating whether stations have permission to contend during a following contention period;

having a first station establish a contention-free access interval for transmission of a plurality of frames, wherein the contention-free access interval is established by

having the first station contend for access during a contention period and successfully gain access to the medium,

transmitting the plurality of frames with contention control information that informs at least some other stations that they are not permitted to contend during contention periods within the contention-free access interval;

having at least a second station that receives the transmitted frames determine from the contention control information whether the second station is permitted to contend during a contention period within the contention-free access interval,

wherein contending during a contention period comprises:

having stations that are contending listen during a listening period before initiating transmission, wherein the listening period is generally different for different stations, and

having a station begin transmitting the frame if activity from other stations is not detected during the listening period, and

wherein stations are without the capability to listen for transmissions from other stations while they are transmitting.